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A TABLE OF THE INTEGRALS

$$\int_0^x J_0(\rho e^{i\phi}) d\rho, \quad \int_0^x N_0(\rho e^{i\phi}) d\rho,$$

$$\int_0^x H_0^{(1)}(\rho e^{i\phi}) d\rho, \text{ and } \int_0^x H_0^{(2)}(\rho e^{i\phi}) d\rho$$

for $0 \leq x \leq 10.0$ and $-\frac{\pi}{2} \leq \phi \leq \frac{\pi}{2}$

R. T. Compton, Jr.
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1 July 1965

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Department of ELECTRICAL ENGINEERING



THE OHIO STATE UNIVERSITY
RESEARCH FOUNDATION
Columbus, Ohio

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by
THE OHIO STATE UNIVERSITY RESEARCH FOUNDATION
COLUMBUS, OHIO 43212

Sponsor National Aeronautics and Space Administration
 Office of Grants and Research Contracts
 Washington, D. C.

Grant Number NsG-448

Investigation of Spacecraft Antenna Problems

Subject of Report A Table of the Integrals
$$\int_0^x J_0(\rho e^{i\phi}) d\rho, \quad \int_0^x N_0(\rho e^{i\phi}) d\rho$$
$$\int_0^x H_0^{(1)}(\rho e^{i\phi}) d\rho, \quad \text{and} \quad \int_0^x H_0^{(2)}(\rho e^{i\phi}) d\rho$$

for $0 \leq x \leq 10.0$ and $-\frac{\pi}{2} \leq \phi \leq \frac{\pi}{2}$

Submitted by R. T. Compton, Jr.
 Antenna Laboratory
 Department of Electrical Engineering

Date 1 July 1965

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A Table of integrals [for the Bessel and Neumann Functions of order zero]
Handel, K

I. EXPLANATION OF THE TABLE

This report contains a tabulation of the following four integrals:

$$(1) \quad IJ(x, \phi) = \int_0^x J_0(\rho e^{+i\phi}) d\rho,$$

$$(2) \quad IN(x, \phi) = \int_0^x N_0(\rho e^{+i\phi}) d\rho,$$

$$(3) \quad IH1(x, \phi) = \int_0^x H_0^{(1)}(\rho e^{+i\phi}) d\rho,$$

$$(4) \quad IH2(x, \phi) = \int_0^x H_0^{(2)}(\rho e^{+i\phi}) d\rho,$$

where $i = \sqrt{-1}$ and $J_0(Z)$ and $N_0(Z)$ are respectively the Bessel and Neumann Functions of order zero and complex argument Z . $H_0^{(1)}(Z)$ and $H_0^{(2)}(Z)$ are the Hankel Functions of order zero of the first and second kinds, defined by

$$(5) \quad H_0^{(1)}(Z) = J_0(Z) + iN_0(Z)$$

$$(6) \quad H_0^{(2)}(Z) = J_0(Z) - iN_0(Z).$$

The integrals (1) to (4) are tabulated for $0 \leq x \leq 10.0$ in increments of 0.2 and for $-\frac{\pi}{2} \leq \phi \leq \frac{\pi}{2}$ in increments of $\frac{\pi}{12}$ (i.e., 15°).

The evaluation of these integrals was performed using a Fortran program on The Ohio State University Numerical Computation Laboratory's IBM 1620 digital computer. The values of the function $J_0(Z)$ and $N_0(Z)$ were read from existing tables[1, 2] to four significant figures after the decimal point. The values of $H_0^{(1)}(Z)$ and $H_0^{(2)}(Z)$ were obtained from $J_0(Z)$ and $N_0(Z)$ using Eqs. (5) and (6). The integrals (1) to (4) were evaluated by Simpson's Rule, using an integration increment of $x = 0.1$.

The results are listed as a function of x , with the value of ϕ constant for each page of the table. The value of ϕ applying for each page is listed at the top of that page.

The value of each integral is listed in terms of its real and imaginary parts. The notation used is:

$$IJ(x, \phi) = RE(IJ) + i IM(IJ)$$

$$IN(x, \phi) = RE(IN) + i IM(IN)$$

$$IH1(x, \phi) = RE(IH1) + i IM(IH1)$$

$$IH2(x, \phi) = RE(IH2) + i IM(IH2).$$

These integrals appear frequently in many areas of mathematical physics, such as, for example, in the study of electromagnetic waves in lossy media. The integrals have been tabulated previously for $\phi = 0$ [3], but not for $\phi \neq 0$.

II. THE TABLE

 $\phi = -90^\circ$

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+•2	+•2006	+•0000	-•3483	-•2006
+•4	+•4053	+•0000	-•5256	-•4053
+•6	+•6182	+•0000	-•6442	-•6182
+•8	+•8436	+•0000	-•7288	-•8436
+1•0	+1•0865	+•0000	-•7910	-1•0865
+1•2	+1•3519	+•0000	-•8377	-1•3519
+1•4	+1•6461	+•0000	-•8733	-1•6461
+1•6	+1•9758	+•0000	-•9006	-1•9758
+1•8	+2•3489	+•0000	-•9217	-2•3489
+2•0	+2•7749	+•0000	-•9382	-2•7749
+2•2	+3•2647	+•0000	-•9511	-3•2647
+2•4	+3•8313	+•0000	-•9612	-3•8313
+2•6	+4•4900	+•0000	-•9691	-4•4900
+2•8	+5•2592	+•0000	-•9754	-5•2592
+3•0	+6•1609	+•0000	-•9804	-6•1609
+3•2	+7•2210	+•0000	-•9843	-7•2210
+3•4	+8•4711	+•0000	-•9875	-8•4711
+3•6	+9•9486	+•0000	-•9900	-9•9486
+3•8	+11•6986	+•0000	-•9920	-11•6986
+4•0	+13•7750	+•0000	-•9936	-13•7750
+4•2	+16•2430	+•0000	-•9948	-16•2430
+4•4	+19•1804	+•0000	-•9959	-19•1804
+4•6	+22•6813	+•0000	-•9967	-22•6813
+4•8	+26•8586	+•0000	-•9973	-26•8586
+5•0	+31•8483	+•0000	-•9979	-31•8483
+5•2	+37•8142	+•0000	-•9983	-37•8142
+5•4	+44•9537	+•0000	-•9986	-44•9537
+5•6	+53•5044	+•0000	-•9989	-53•5044
+5•8	+63•7532	+•0000	-•9991	-63•7532
+6•0	+76•0457	+•0000	-•9993	-76•0457
+6•2	+90•7990	+•0000	-•9994	-90•7990
+6•4	+108•5163	+•0000	-•9996	-108•5163
+6•6	+129•8051	+•0000	-•9997	-129•8051
+6•8	+155•3987	+•0000	-•9997	-155•3987
+7•0	+186•1826	+•0000	-•9998	-186•1826
+7•2	+223•2265	+•0000	-•9998	-223•2265
+7•4	+267•8226	+•0000	-•9999	-267•8226
+7•6	+321•5327	+•0000	-•9999	-321•5327
+7•8	+386•2443	+•0000	-•9999	-386•2443
+8•0	+464•2393	+•0000	-1•0000	-464•2393
+8•2	+558•2770	+•0000	-1•0000	-558•2770
+8•4	+671•6944	+•0000	-1•0000	-671•6944
+8•6	+808•5281	+•0000	-1•0000	-808•5281
+8•8	+973•6618	+•0000	-1•0000	-973•6618
+9•0	+1173•0047	+•0000	-1•0000	-1173•0047
+9•2	+1413•7086	+•0000	-1•0000	-1413•7086
+9•4	+1704•4302	+•0000	-1•0000	-1704•4302
+9•6	+2055•6496	+•0000	-1•0000	-2055•6496
+9•8	+2480•0561	+•0000	-1•0000	-2480•0561
+10•0	+2993•0162	+•0000	-1•0000	-2993•0162

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•4013	-•3483	+•0000	+•3483
+•4	+•8107	-•5256	+•0000	+•5256
+•6	+1•2364	-•6442	+•0000	+•6442
+•8	+1•6873	-•7288	+•0000	+•7288
+1•0	+2•1730	-•7910	+•0000	+•7910
+1•2	+2•7039	-•8377	+•0000	+•8377
+1•4	+3•2922	-•8733	+•0000	+•8733
+1•6	+3•9516	-•9006	+•0000	+•9006
+1•8	+4•6979	-•9217	+•0000	+•9217
+2•0	+5•5499	-•9382	+•0000	+•9382
+2•2	+6•5295	-•9511	+•0000	+•9511
+2•4	+7•6626	-•9612	+•0000	+•9612
+2•6	+8•9800	-•9691	+•0000	+•9691
+2•8	+10•5185	-•9754	+•0000	+•9754
+3•0	+12•3218	-•9804	+•0000	+•9804
+3•2	+14•4421	-•9843	+•0000	+•9843
+3•4	+16•9423	-•9875	+•0000	+•9875
+3•6	+19•8973	-•9900	+•0000	+•9900
+3•8	+23•3972	-•9920	+•0000	+•9920
+4•0	+27•5501	-•9936	+•0000	+•9936
+4•2	+32•4860	-•9948	+•0000	+•9948
+4•4	+38•3609	-•9959	+•0000	+•9959
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+9•6	+4111•2992	-1•0000	+•0000	+1•0000
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+10•0	+5986•0324	-1•0000	+•0000	+1•0000

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
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+•4	+•4046	+•0027	-•5223	-•3412
+•6	+•6157	+•0092	-•6334	-•5246
+•8	+•8374	+•0222	-•7035	-•7217
+1•0	+1•0737	+•0444	-•7418	-•9364
+1•2	+1•3285	+•0789	-•7521	-1•1724
+1•4	+1•6064	+•1295	-•7350	-1•4341
+1•6	+1•9119	+•2007	-•6890	-1•7257
+1•8	+2•2503	+•2980	-•6107	-2•0522
+2•0	+2•6271	+•4282	-•4949	-2•4190
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+6•6	+30•5069	+98•1876	+97•2213	-30•2485
+6•8	+29•9493	+118•5261	+117•5599	-29•6908
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+7•6	+8•2019	+246•1278	+245•1617	-7•9432
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+8•2	-52•8450	+415•8764	+414•9103	+53•1038
+8•4	-89•4387	+493•0400	+492•0739	+89•6975
+8•6	-138•0252	+583•1059	+582•1399	+138•2841
+8•8	-201•7833	+687•8980	+686•9320	+202•0421
+9•0	-284•6400	+809•4095	+808•4435	+284•8989
+9•2	-391•4325	+949•7913	+948•8253	+391•6913
+9•4	-528•1000	+1111•3279	+1110•3619	+528•3589
+9•6	-701•9154	+1296•3963	+1295•4303	+702•1742
+9•8	-921•7591	+1507•4028	+1506•4368	+922•0179
+10•0	-1198•4461	+1746•6898	+1745•7238	+1198•7050

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+0.2	+0.3683	-0.3475	+0.0327	+0.3482
+0.4	+0.7458	-0.5196	+0.0633	+0.5250
+0.6	+1.1403	-0.6241	+0.0910	+0.6426
+0.8	+1.5592	-0.6812	+0.1156	+0.7257
+1.0	+2.0101	-0.6974	+0.1373	+0.7863
+1.2	+2.5010	-0.6731	+0.1560	+0.8311
+1.4	+3.0405	-0.6054	+0.1723	+0.8645
+1.6	+3.6377	-0.4882	+0.1861	+0.8897
+1.8	+4.3026	-0.3126	+0.1980	+0.9088
+2.0	+5.0461	-0.0667	+0.2081	+0.9232
+2.2	+5.8803	+0.2647	+0.2166	+0.9341
+2.4	+6.8181	+0.7010	+0.2237	+0.9423
+2.6	+7.8738	+1.2660	+0.2297	+0.9486
+2.8	+9.0624	+1.9892	+0.2348	+0.9533
+3.0	+10.4005	+2.9064	+0.2390	+0.9568
+3.2	+11.9049	+4.0615	+0.2425	+0.9594
+3.4	+13.5934	+5.5080	+0.2454	+0.9614
+3.6	+15.4838	+7.3102	+0.2478	+0.9629
+3.8	+17.5935	+9.5464	+0.2498	+0.9639
+4.0	+19.9384	+12.3106	+0.2514	+0.9647
+4.2	+22.5318	+15.7159	+0.2528	+0.9652
+4.4	+25.3830	+19.8981	+0.2539	+0.9656
+4.6	+28.4947	+25.0200	+0.2548	+0.9659
+4.8	+31.8604	+31.2758	+0.2556	+0.9661
+5.0	+35.4607	+38.8972	+0.2562	+0.9662
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+5.4	+43.1926	+59.3909	+0.2571	+0.9663
+5.6	+47.1703	+72.9779	+0.2575	+0.9663
+5.8	+51.0571	+89.3784	+0.2577	+0.9663
+6.0	+54.6645	+109.1317	+0.2579	+0.9663
+6.2	+57.7341	+132.8718	+0.2581	+0.9662
+6.4	+59.9183	+161.3414	+0.2583	+0.9662
+6.6	+60.7555	+195.4090	+0.2584	+0.9662
+6.8	+59.6401	+236.0860	+0.2585	+0.9662
+7.0	+55.7851	+284.5471	+0.2585	+0.9661
+7.2	+48.1759	+342.1516	+0.2586	+0.9661
+7.4	+35.5135	+410.4662	+0.2586	+0.9661
+7.6	+16.1451	+491.2895	+0.2587	+0.9661
+7.8	-12.0206	+586.6762	+0.2587	+0.9661
+8.0	-51.6179	+698.9621	+0.2587	+0.9660
+8.2	-105.9488	+830.7868	+0.2588	+0.9660
+8.4	-179.1363	+985.1139	+0.2588	+0.9660
+8.6	-276.3093	+1165.2459	+0.2588	+0.9660
+8.8	-403.8254	+1374.8301	+0.2588	+0.9660
+9.0	-569.5390	+1617.8530	+0.2588	+0.9660
+9.2	-783.1238	+1898.6166	+0.2588	+0.9660
+9.4	-1056.4590	+2221.6898	+0.2588	+0.9660
+9.6	-1404.0897	+2591.8266	+0.2588	+0.9660
+9.8	-1843.7771	+3013.8396	+0.2588	+0.9660
+10.0	-2397.1511	+3492.4136	+0.2589	+0.9660

$\phi = -60^\circ$

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+•2	+•2003	+•0005	-•3472	-•1346
+•4	+•4026	+•0046	-•5184	-•2754
+•6	+•6088	+•0158	-•6219	-•4256
+•8	+•8208	+•0378	-•6788	-•5877
+1•0	+1•0400	+•0748	-•6971	-•7630
+1•2	+1•2678	+•1314	-•6794	-•9528
+1•4	+1•5052	+•2125	-•6254	-1•1575
+1•6	+1•7525	+•3239	-•5326	-1•3769
+1•8	+2•0095	+•4718	-•3971	-1•6104
+2•0	+2•2752	+•6636	-•2134	-1•8562
+2•2	+2•5472	+•9071	+•0252	-2•1118
+2•4	+2•8221	+1•2113	+•3270	-2•3732
+2•6	+3•0949	+1•5862	+•7010	-2•6349
+2•8	+3•3583	+2•0426	+1•1576	-2•8892
+3•0	+3•6029	+2•5923	+1•7082	-3•1264
+3•2	+3•8159	+3•2480	+2•3652	-3•3337
+3•4	+3•9816	+4•0227	+3•1415	-3•4947
+3•6	+4•0797	+4•9301	+4•0506	-3•5891
+3•8	+4•0852	+5•9838	+5•1059	-3•5918
+4•0	+3•9674	+7•1966	+6•3203	-3•4718
+4•2	+3•6891	+8•5803	+7•7054	-3•1919
+4•4	+3•2056	+10•1440	+9•2705	-2•7071
+4•6	+2•4636	+11•8938	+11•0215	-1•9642
+4•8	+1•4003	+13•8303	+12•9591	-•9003
+5•0	-•0573	+15•9475	+15•0771	+•5578
+5•2	-1•9944	+18•2298	+17•3602	+2•4952
+5•4	-4•5081	+20•6493	+19•7804	+5•0090
+5•6	-7•7087	+23•1627	+22•2944	+8•2097
+5•8	-11•7203	+25•7065	+24•8386	+12•2213
+6•0	-16•6802	+28•1924	+27•3249	+17•1812
+6•2	-22•7392	+30•5016	+29•6344	+23•2402
+6•4	-30•0596	+32•4778	+31•6108	+30•5605
+6•6	-38•8132	+33•9197	+33•0529	+39•3140
+6•8	-49•1779	+34•05721	+33•7055	+49•6786
+7•0	-61•3321	+34•1161	+33•2496	+61•8327
+7•2	-75•4479	+32•1580	+31•2915	+75•9485
+7•4	-91•6813	+28•2170	+27•3507	+92•1817
+7•6	-119•1590	+21•7128	+20•8465	+110•6594
+7•8	-139•9625	+11•9508	+11•0646	+131•4628
+8•0	-154•1064	-1•08911	-2•7573	+154•5067
+8•2	-179•5154	-20•7781	-21•6443	+180•0130
+8•4	-206•9808	-45•8313	-46•6975	+207•4783
+8•6	-236•1368	-78•3407	-79•2069	+236•6342
+8•8	-266•4015	-119•7750	-120•6412	+266•8989
+9•0	-296•9224	-171•7881	-172•6542	+297•4199
+9•2	-326•5077	-236•2191	-237•0053	+327•0051
+9•4	-353•5457	-315•0058	-315•9520	+354•0431
+9•6	-375•9119	-410•5663	-411•4325	+376•4093
+9•8	-390•8604	-524•9672	-525•8335	+391•3578
+10•0	-394•9019	-660•6740	-661•5402	+395•3992

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•3350	-•3467	+•0656	+•3478
+•4	+•6780	-•5138	+•1472	+•5231
+•6	+1•0345	-•6061	+•1031	+•6377
+•8	+1•4085	-•6410	+•2330	+•7167
+1•0	+1•8031	-•6222	+•2769	+•7720
+1•2	+2•2207	-•5480	+•3150	+•8108
+1•4	+2•6627	-•4128	+•3477	+•8350
+1•6	+3•1295	-•2087	+•3756	+•8565
+1•8	+3•6200	+•3747	+•3971	+•8690
+2•0	+4•1314	+•4501	+•4187	+•8770
+2•2	+4•6591	+•9323	+•4353	+•8818
+2•4	+5•1954	+•15383	+•4482	+•8843
+2•6	+5•7298	+•2072	+•4600	+•8851
+2•8	+6•2476	+•32003	+•4691	+•8850
+3•0	+6•7293	+•43006	+•4764	+•8840
+3•2	+7•1497	+•56132	+•4822	+•8827
+3•4	+7•4764	+•71642	+•4902	+•8811
+3•6	+7•6689	+•80908	+•4905	+•8795
+3•8	+7•9771	+1•05073	+•4734	+•8779
+4•0	+7•4393	+1•3•2170	+•4752	+•8763
+4•2	+6•0311	+1•6•2057	+•4972	+•8748
+4•4	+5•9127	+1•7•4146	+•4954	+•8735
+4•6	+4•4270	+2•2•7153	+•4973	+•8723
+4•8	+2•3•200	+2•6•7090	+•5000	+•8712
+5•0	-•6152	+3•1•2247	+•5004	+•8703
+5•2	-4•4890	+3•5•3400	+•5007	+•8695
+5•4	-7•0171	+4•0•4293	+•5009	+•8688
+5•6	-15•2189	+4•5•4571	+•5009	+•8683
+5•8	-23•2416	+5•0•3401	+•5010	+•8678
+6•0	-33•0510	+5•5•3173	+•5002	+•8674
+6•2	-45•2724	+6•0•1360	+•5002	+•8672
+6•4	-60•6214	+6•4•3056	+•5003	+•8670
+6•6	-73•1273	+6•8•2725	+•5007	+•8668
+6•8	-78•0550	+7•3•2770	+•5006	+•8666
+7•0	-12•3•1643	+7•7•3077	+•5006	+•8665
+7•2	-15•1•3364	+8•1•4400	+•5010	+•8664
+7•4	-18•3•0551	+8•5•5673	+•5004	+•8663
+7•6	-22•0•0130	+4•2•0503	+•5003	+•8662
+7•8	-26•0•4235	+2•3•0•3000	+•5004	+•8662
+8•0	-32•0•7131	-4•0•1434	+•5002	+•8662
+8•2	-38•0•5704	-4•2•0•4244	+•4970	+•8661
+8•4	-414•4•32	-32•0•1203	+•4970	+•8661
+8•6	-472•7•710	-1•57•-470	+•4974	+•8661
+8•8	-523•0•3000	-2•4•-4163	+•4974	+•8661
+9•0	-574•0•3420	-3•4•-4720	+•4974	+•8661
+9•2	-623•0•2100	-4•7•-3040	+•4974	+•8661
+9•4	-707•0•3800	-6•31•-370	+•4973	+•8661
+9•6	-752•0•3212	-8•21•-3600	+•4973	+•8661
+9•8	-782•0•2102	-1•350•-3100	+•4973	+•8662
+10•0	-792•0•3•11	-1•322•-2140	+•4973	+•8662

$\phi = -45^\circ$

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+0.2	+0.1999	+0.0006	-0.3466	-0.1012
+0.4	+0.3999	+0.0053	-0.5148	-0.2080
+0.6	+0.5997	+0.0179	-0.6121	-0.3223
+0.8	+0.7989	+0.0426	-0.6594	-0.4448
+1.0	+0.9968	+0.0832	-0.6652	-0.5752
+1.2	+1.1922	+0.1437	-0.6333	-0.7119
+1.4	+1.3831	+0.2280	-0.5649	-0.8528
+1.6	+1.5672	+0.3396	-0.4601	-0.9947
+1.8	+1.7410	+0.4821	-0.3181	-1.1334
+2.0	+1.9003	+0.6587	-0.1379	-1.2640
+2.2	+2.0398	+0.8718	+0.0816	-1.3804
+2.4	+2.1531	+1.1236	+0.3415	-1.4754
+2.6	+2.2327	+1.4150	+0.6417	-1.5409
+2.8	+2.2700	+1.7461	+0.9818	-1.5676
+3.0	+2.2553	+2.1154	+1.3599	-1.5451
+3.2	+2.1777	+2.5198	+1.7725	-1.4621
+3.4	+2.0255	+2.9539	+2.2141	-1.3064
+3.6	+1.7863	+3.4101	+2.6770	-1.0650
+3.8	+1.4471	+3.8778	+3.1506	-0.7249
+4.0	+0.9950	+4.3432	+3.6209	-0.2728
+4.2	+0.4177	+4.7886	+4.0704	+0.3038
+4.4	-0.2962	+5.1922	+4.4775	+1.0168
+4.6	-1.1563	+5.5281	+4.8162	+1.8757
+4.8	-2.1692	+5.7656	+5.0558	+2.8872
+5.0	-3.3376	+5.8689	+5.1609	+4.0543
+5.2	-4.6594	+5.7977	+5.0909	+5.3746
+5.4	-6.1256	+5.5068	+4.8009	+6.8394
+5.6	-7.7192	+4.9468	+4.2415	+8.4318
+5.8	-9.4134	+4.0647	+3.3598	+10.1250
+6.0	-11.1700	+2.8053	+2.1006	+11.8805
+6.2	-12.9370	+1.1121	+0.4074	+13.6467
+6.4	-14.6472	-1.0701	-1.7749	+15.3562
+6.6	-16.2163	-3.7932	-4.4982	+16.9247
+6.8	-17.5410	-7.1023	-7.8075	+18.2488
+7.0	-18.4980	-11.0319	-11.7374	+19.2053
+7.2	-18.9425	-15.6015	-16.3072	+19.6495
+7.4	-18.7085	-20.8102	-21.5161	+19.4153
+7.6	-17.6089	-26.6308	-27.3369	+18.3156
+7.8	-15.4368	-33.0030	-33.7094	+16.1433
+8.0	-11.9683	-39.8261	-40.5327	+12.6748
+8.2	-6.9668	-46.9510	-47.6577	+7.6733
+8.4	-0.1888	-54.1715	-54.8784	+0.8952
+8.6	+8.6079	-61.2166	-61.9237	-7.9014
+8.8	+19.6538	-67.7417	-68.4489	-18.9473
+9.0	+33.1543	-73.3209	-74.0281	-32.4478
+9.2	+49.2739	-77.4403	-78.1476	-48.5673
+9.4	+68.1163	-79.4933	-80.2007	-67.4097
+9.6	+89.7026	-78.7780	-79.4854	-88.9959
+9.8	+113.9442	-74.4976	-75.2050	-113.2375
+10.0	+140.6144	-65.7655	-66.4729	-139.9077

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•3012	-•3460	+•0987	+•3473
+•4	+•6079	-•5095	+•1919	+•5201
+•6	+•9220	-•5941	+•2774	+•6301
+•8	+1•2438	-•6167	+•3540	+•7020
+1•0	+1•5721	-•5819	+•4216	+•7485
+1•2	+1•9041	-•4895	+•4802	+•7771
+1•4	+2•2360	-•3369	+•5303	+•7929
+1•6	+2•5619	-•1204	+•5725	+•7998
+1•8	+2•8745	+•1640	+•6076	+•8003
+2•0	+3•1644	+•5207	+•6363	+•7966
+2•2	+3•4202	+•9535	+•6594	+•7902
+2•4	+3•6285	+1•4651	+•6776	+•7821
+2•6	+3•7737	+2•0568	+•6917	+•7732
+2•8	+3•8377	+2•7280	+•7024	+•7642
+3•0	+3•8005	+3•4754	+•7102	+•7555
+3•2	+3•6399	+4•2923	+•7156	+•7472
+3•4	+3•3319	+5•1681	+•7191	+•7397
+3•6	+2•8514	+6•0872	+•7212	+•7330
+3•8	+2•1721	+7•0284	+•7221	+•7271
+4•0	+1•2679	+7•9641	+•7221	+•7222
+4•2	+•1138	+8•8590	+•7216	+•7182
+4•4	-1•3131	+9•6698	+•7206	+•7147
+4•6	-3•0320	+10•3444	+•7194	+•7119
+4•8	-5•0564	+10•8215	+•7180	+•7097
+5•0	-7•3920	+11•0298	+•7166	+•7080
+5•2	-10•0341	+10•8887	+•7152	+•7067
+5•4	-12•9651	+10•3077	+•7138	+•7058
+5•6	-16•1510	+9•1883	+•7126	+•7052
+5•8	-19•5384	+7•4246	+•7115	+•7049
+6•0	-23•0506	+4•9060	+•7105	+•7047
+6•2	-26•5837	+1•5196	+•7096	+•7047
+6•4	-30•0035	-2•8450	+•7089	+•7048
+6•6	-33•1410	-8•2915	+•7083	+•7049
+6•8	-35•7899	-14•9099	+•7078	+•7051
+7•0	-37•7034	-22•7693	+•7073	+•7054
+7•2	-38•5921	-31•9087	+•7070	+•7056
+7•4	-38•1239	-42•3263	+•7068	+•7059
+7•6	-35•9245	-53•9678	+•7066	+•7061
+7•8	-31•5802	-66•7125	+•7065	+•7063
+8•0	-24•6432	-80•3589	+•7064	+•7065
+8•2	-14•6401	-94•6087	+•7064	+•7067
+8•4	-1•0841	-109•0500	+•7064	+•7069
+8•6	+16•5093	-123•1404	+•7064	+•7070
+8•8	+38•6011	-136•1907	+•7065	+•7071
+9•0	+65•6021	-147•3490	+•7065	+•7072
+9•2	+97•8412	-155•5879	+•7065	+•7073
+9•4	+135•5261	-159•6941	+•7066	+•7073
+9•6	+178•6985	-158•2635	+•7066	+•7073
+9•8	+227•1818	-149•7026	+•7067	+•7074
+10•0	+280•5222	-132•2385	+•7067	+•7074

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+0.2	+0.1996	+0.0005	-0.3461	-0.0676
+0.4	+0.3973	+0.0045	-0.5120	-0.1393
+0.6	+0.5908	+0.0153	-0.6049	-0.2160
+0.8	+0.7781	+0.0360	-0.6466	-0.2975
+1.0	+0.9568	+0.0694	-0.6471	-0.3824
+1.2	+1.1243	+0.1179	-0.6121	-0.4683
+1.4	+1.2779	+0.1834	-0.5454	-0.5525
+1.6	+1.4145	+0.2672	-0.4501	-0.6315
+1.8	+1.5311	+0.3698	-0.3292	-0.7013
+2.0	+1.6244	+0.4910	-0.1853	-0.7578
+2.2	+1.6907	+0.6297	-0.0219	-0.7963
+2.4	+1.7269	+0.7838	+0.1575	-0.8125
+2.6	+1.7296	+0.9502	+0.3488	-0.8019
+2.8	+1.6958	+1.1249	+0.5468	-0.7605
+3.0	+1.6230	+1.3028	+0.7459	-0.6847
+3.2	+1.5092	+1.4778	+0.9397	-0.5715
+3.4	+1.3533	+1.6428	+1.1208	-0.4191
+3.6	+1.1554	+1.7899	+1.2815	-0.2266
+3.8	+0.9166	+1.9108	+1.4132	+0.0052
+4.0	+0.6398	+1.9963	+1.5071	+0.2745
+4.2	+0.3294	+2.0373	+1.5542	+0.5770
+4.4	-0.0082	+2.0245	+1.5456	+0.9069
+4.6	-0.3649	+1.9493	+1.4728	+1.2562
+4.8	-0.7302	+1.8038	+1.3283	+1.6147
+5.0	-1.0918	+1.5815	+1.1058	+1.9701
+5.2	-1.4350	+1.2776	+0.8007	+2.3080
+5.4	-1.7436	+0.8895	+0.4109	+2.6121
+5.6	-1.9995	+0.4176	-0.0632	+2.8644
+5.8	-2.1837	-0.1344	-0.6179	+3.0457
+6.0	-2.2763	-0.7593	-1.2454	+3.1362
+6.2	-2.2572	-1.4454	-1.9342	+3.1156
+6.4	-2.1071	-2.1765	-2.6679	+2.9647
+6.6	-1.8082	-2.9317	-3.4254	+2.6654
+6.8	-1.3453	-3.6851	-4.1810	+2.2026
+7.0	-0.7066	-4.4062	-4.9039	+1.5643
+7.2	+0.1145	-5.0598	-5.5591	+0.7437
+7.4	+1.1192	-5.6070	-6.1076	-0.2601
+7.6	+2.3012	-6.0056	-6.5072	-1.4412
+7.8	+3.6460	-6.2112	-6.7136	-2.7851
+8.0	+5.1298	-6.1790	-6.6819	-4.2679
+8.2	+6.7187	-5.8649	-6.3682	-5.8559
+8.4	+8.3677	-5.2279	-5.7313	-7.5041
+8.6	+10.0212	-4.2319	-4.7353	-9.1567
+8.8	+11.6121	-2.8488	-3.3520	-10.7470
+9.0	+13.0632	-1.0603	-1.5634	-12.1975
+9.2	+14.2877	+1.1383	+0.6356	-13.4215
+9.4	+15.1910	+3.7367	+3.2343	-14.3245
+9.6	+15.6734	+6.7054	+6.2033	-14.8066
+9.8	+15.6326	+9.9943	+9.4926	-14.7656
+10.0	+14.9677	+13.5301	+13.0287	-14.1005

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•2673	-•3456	+•1319	+•3467
+•4	+•5366	-•5074	+•2579	+•5166
+•6	+•8069	-•5895	+•3747	+•6203
+•8	+1•0757	-•6106	+•4805	+•6827
+1•0	+1•3392	-•5777	+•5744	+•7166
+1•2	+1•5926	-•4941	+•6559	+•7301
+1•4	+1•8304	-•3619	+•7253	+•7289
+1•6	+2•0461	-•1829	+•7830	+•7174
+1•8	+2•2325	+•0406	+•8298	+•6991
+2•0	+2•3822	+•3056	+•8665	+•6764
+2•2	+2•4871	+•6078	+•8944	+•6516
+2•4	+2•5395	+•9414	+•9144	+•6262
+2•6	+2•5316	+1•2990	+•9276	+•6014
+2•8	+2•4564	+1•6718	+•9352	+•5781
+3•0	+2•3077	+2•0488	+•9382	+•5568
+3•2	+2•0807	+2•4175	+•9376	+•5380
+3•4	+1•7724	+2•7636	+•9341	+•5219
+3•6	+1•3820	+3•0715	+•9287	+•5084
+3•8	+•9114	+3•3241	+•9219	+•4975
+4•0	+•3653	+3•5035	+•9143	+•4892
+4•2	-•2475	+3•5915	+•9065	+•4830
+4•4	-•9151	+3•5701	+•8987	+•4789
+4•6	-1•6211	+3•4221	+•8913	+•4765
+4•8	-2•3450	+3•1322	+•8844	+•4755
+5•0	-3•0619	+2•6873	+•8783	+•4757
+5•2	-3•7430	+2•0783	+•8730	+•4768
+5•4	-4•3557	+1•3004	+•8685	+•4786
+5•6	-4•8640	+•3543	+•8648	+•4809
+5•8	-5•2295	-•7523	+•8620	+•4834
+6•0	-5•4125	-2•0048	+•8598	+•4861
+6•2	-5•3728	-3•3797	+•8584	+•4887
+6•4	-5•0718	-4•8445	+•8576	+•4913
+6•6	-4•4737	-6•3572	+•8572	+•4937
+6•8	-3•5479	-7•8662	+•8573	+•4958
+7•0	-2•2710	-9•3102	+•8576	+•4977
+7•2	-•6292	-10•6190	+•8583	+•4993
+7•4	+1•3793	-11•7147	+•8591	+•5006
+7•6	+3•7424	-12•5128	+•8600	+•5016
+7•8	+6•4311	-12•9249	+•8609	+•5023
+8•0	+9•3978	-12•8610	+•8618	+•5029
+8•2	+12•5746	-12•2331	+•8628	+•5032
+8•4	+15•8719	-10•9592	+•8636	+•5033
+8•6	+19•1780	-8•9673	+•8644	+•5033
+8•8	+22•3592	-6•2009	+•8651	+•5032
+9•0	+25•2608	-2•6238	+•8656	+•5030
+9•2	+27•7092	+1•7740	+•8661	+•5027
+9•4	+29•5155	+6•9710	+•8665	+•5024
+9•6	+30•4800	+12•9088	+•8668	+•5020
+9•8	+30•3982	+19•4869	+•8670	+•5017
+10•0	+29•0683	+26•5588	+•8671	+•5013

$$\phi = -15^\circ$$

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+0.2	+0.1994	+0.0003	-0.3458	-0.0338
+0.4	+0.3953	+0.0026	-0.5102	-0.0698
+0.6	+0.5845	+0.0087	-0.6007	-0.1083
+0.8	+0.7635	+0.0204	-0.6400	-0.1488
+1.0	+0.9294	+0.0390	-0.6392	-0.1901
+1.2	+1.0791	+0.0654	-0.6058	-0.2310
+1.4	+1.2103	+0.1004	-0.5457	-0.2696
+1.6	+1.3207	+0.1438	-0.4637	-0.3037
+1.8	+1.4085	+0.1955	-0.3649	-0.3314
+2.0	+1.4724	+0.2543	-0.2536	-0.3505
+2.2	+1.5116	+0.3188	-0.1345	-0.3593
+2.4	+1.5258	+0.3872	-0.0121	-0.3560
+2.6	+1.5153	+0.4571	+0.1090	-0.3395
+2.8	+1.4811	+0.5258	+0.2250	-0.3091
+3.0	+1.4246	+0.5906	+0.3316	-0.2644
+3.2	+1.3480	+0.6484	+0.4250	-0.2060
+3.4	+1.2540	+0.6962	+0.5018	-0.1347
+3.6	+1.1458	+0.7312	+0.5590	-0.0524
+3.8	+1.0273	+0.7508	+0.5941	+0.0387
+4.0	+0.9025	+0.7530	+0.6054	+0.1359
+4.2	+0.7760	+0.7360	+0.5918	+0.2356
+4.4	+0.6524	+0.6989	+0.5530	+0.3343
+4.6	+0.5365	+0.6415	+0.4896	+0.4278
+4.8	+0.4316	+0.5644	+0.4029	+0.5119
+5.0	+0.3450	+0.4689	+0.2953	+0.5826
+5.2	+0.2794	+0.3574	+0.1698	+0.6358
+5.4	+0.2384	+0.2330	+0.0303	+0.6680
+5.6	+0.2249	+0.0995	-0.1185	+0.6761
+5.8	+0.2410	-0.0384	-0.2714	+0.6578
+6.0	+0.2878	-0.1756	-0.4228	+0.6117
+6.2	+0.3654	-0.3066	-0.5666	+0.5372
+6.4	+0.4727	-0.4255	-0.6967	+0.4351
+6.6	+0.6075	-0.5266	-0.8071	+0.3072
+6.8	+0.7663	-0.6043	-0.8921	+0.1563
+7.0	+0.9446	-0.6536	-0.9467	-0.0133
+7.2	+1.1366	-0.6701	-0.9665	-0.1964
+7.4	+1.3358	-0.6503	-0.9483	-0.3868
+7.6	+1.5347	-0.5921	-0.8899	-0.5775
+7.8	+1.7255	-0.4946	-0.7906	-0.7607
+8.0	+1.8999	-0.3582	-0.6513	-0.9284
+8.2	+2.0498	-0.1853	-0.4744	-1.0727
+8.4	+2.1671	+0.0202	-0.2642	-1.1855
+8.6	+2.2447	+0.2531	-0.0262	-1.2598
+8.8	+2.2762	+0.5062	+0.2320	-1.2892
+9.0	+2.2566	+0.7709	+0.5019	-1.2686
+9.2	+2.1825	+1.0375	+0.7735	-1.1946
+9.4	+2.0524	+1.2956	+1.0362	-1.0654
+9.6	+1.8669	+1.5338	+1.2784	-0.8816
+9.8	+1.6287	+1.7407	+1.4888	-0.6457
+10.0	+1.3430	+1.9053	+1.6562	-0.3627

$\phi = -15^\circ$

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•2333	-•3455	+•1655	+•3461
+•4	+•4652	-•5076	+•3255	+•5128
+•6	+•6928	-•5919	+•4761	+•6095
+•8	+•9124	-•6195	+•6147	+•6604
+1•0	+1•1195	-•6002	+•7392	+•6782
+1•2	+1•3102	-•5404	+•8481	+•6713
+1•4	+1•4799	-•4452	+•9407	+•6461
+1•6	+1•6245	-•3198	+1•0170	+•6076
+1•8	+1•7399	-•1693	+1•0771	+•5604
+2•0	+1•8230	+•0006	+1•1218	+•5079
+2•2	+1•8709	+•1842	+1•1523	+•4534
+2•4	+1•8819	+•3750	+1•1697	+•3994
+2•6	+1•8549	+•5661	+1•1757	+•3480
+2•8	+1•7902	+•7509	+1•1719	+•3008
+3•0	+1•6890	+•9223	+1•1601	+•2589
+3•2	+1•5540	+1•0734	+1•1419	+•2233
+3•4	+1•3887	+1•1980	+1•1192	+•1943
+3•6	+1•1982	+1•2902	+1•0934	+•1722
+3•8	+•9885	+1•3450	+1•0660	+•1567
+4•0	+•7666	+1•3584	+1•0384	+•1475
+4•2	+•5403	+1•3279	+1•0117	+•1441
+4•4	+•3180	+1•2520	+•9867	+•1459
+4•6	+•1086	+1•1312	+•9643	+•1519
+4•8	-•0803	+•9674	+•9436	+•1614
+5•0	-•2375	+•7643	+•9276	+•1736
+5•2	-•3563	+•5272	+•9152	+•1876
+5•4	-•4295	+•2633	+•9064	+•2027
+5•6	-•4512	-•0190	+•9010	+•2180
+5•8	-•4168	-•3099	+•8988	+•2330
+6•0	-•3238	-•5985	+•8995	+•2471
+6•2	-•1718	-•3732	+•9027	+•2600
+6•4	+•0375	-1•1222	+•9079	+•2712
+6•6	+•3003	-1•3337	+•9147	+•2805
+6•8	+•6100	-1•4965	+•9227	+•2878
+7•0	+•9579	-1•6003	+•9313	+•2931
+7•2	+1•3330	-1•6367	+•9401	+•2964
+7•4	+1•7226	-1•5987	+•9489	+•2979
+7•6	+2•1122	-1•4820	+•9572	+•2977
+7•8	+2•4862	-1•2852	+•9648	+•2959
+8•0	+2•8284	-1•0096	+•9715	+•2930
+8•2	+3•1225	-•6598	+•9771	+•2891
+8•4	+3•3527	-•2439	+•9816	+•2845
+8•6	+3•5046	+•2268	+•9848	+•2794
+8•8	+3•5655	+•7382	+•9869	+•2742
+9•0	+3•5253	+1•2728	+•9879	+•2689
+9•2	+3•3771	+1•8111	+•9879	+•2640
+9•4	+3•1179	+2•3318	+•9870	+•2594
+9•6	+2•7485	+2•8122	+•9853	+•2553
+9•8	+2•2744	+3•2296	+•9830	+•2518
+10•0	+1•7058	+3•5615	+•9803	+•2491

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+•2	+•1993	+•0000	-•3457	+•0000
+•4	+•3946	+•0000	-•5096	+•0000
+•6	+•5822	+•0000	-•5993	+•0000
+•8	+•7583	+•0000	-•6379	+•0000
+1•0	+•9197	+•0000	-•6371	+•0000
+1•2	+1•0635	+•0000	-•6050	+•0000
+1•4	+1•1874	+•0000	-•5479	+•0000
+1•6	+1•2898	+•0000	-•4716	+•0000
+1•8	+1•3693	+•0000	-•3814	+•0000
+2•0	+1•4257	+•0000	-•2823	+•0000
+2•2	+1•4591	+•0000	-•1788	+•0000
+2•4	+1•4702	+•0000	-•0753	+•0000
+2•6	+1•4606	+•0000	+•0240	+•0000
+2•8	+1•4322	+•0000	+•1160	+•0000
+3•0	+1•3875	+•0000	+•1975	+•0000
+3•2	+1•3292	+•0000	+•2660	+•0000
+3•4	+1•2605	+•0000	+•3198	+•0000
+3•6	+1•1846	+•0000	+•3576	+•0000
+3•8	+1•1049	+•0000	+•3788	+•0000
+4•0	+1•0247	+•0000	+•3835	+•0000
+4•2	+•9471	+•0000	+•3723	+•0000
+4•4	+•8750	+•0000	+•3465	+•0000
+4•6	+•8118	+•0000	+•3076	+•0000
+4•8	+•7590	+•0000	+•2579	+•0000
+5•0	+•7171	+•0000	+•1995	+•0000
+5•2	+•6882	+•0000	+•1353	+•0000
+5•4	+•6731	+•0000	+•0680	+•0000
+5•6	+•6717	+•0000	+•0002	+•0000
+5•8	+•6836	+•0000	-•0652	+•0000
+6•0	+•7080	+•0000	-•1260	+•0000
+6•2	+•7434	+•0000	-•1798	+•0000
+6•4	+•7880	+•0000	-•2248	+•0000
+6•6	+•8400	+•0000	-•2594	+•0000
+6•8	+•8969	+•0000	-•2826	+•0000
+7•0	+•9564	+•0000	-•2938	+•0000
+7•2	+1•0161	+•0000	-•2930	+•0000
+7•4	+1•0737	+•0000	-•2805	+•0000
+7•6	+1•1268	+•0000	-•2571	+•0000
+7•8	+1•1737	+•0000	-•2240	+•0000
+8•0	+1•2125	+•0000	-•1828	+•0000
+8•2	+1•2420	+•0000	-•1352	+•0000
+8•4	+1•2612	+•0000	-•0834	+•0000
+8•6	+1•2695	+•0000	-•0295	+•0000
+8•8	+1•2670	+•0000	+•0243	+•0000
+9•0	+1•2540	+•0000	+•0761	+•0000
+9•2	+1•2312	+•0000	+•1237	+•0000
+9•4	+1•1998	+•0000	+•1653	+•0000
+9•6	+1•1610	+•0000	+•1995	+•0000
+9•8	+1•1168	+•0000	+•2251	+•0000
+10•0	+1•0688	+•0000	+•2411	+•0000

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•1993	-•3457	+•1993	+•3457
+•4	+•3946	-•5096	+•3946	+•5096
+•6	+•5822	-•5993	+•5822	+•5993
+•8	+•7583	-•6379	+•7583	+•6379
+1•0	+•9197	-•6371	+•9197	+•6371
+1•2	+1•0635	-•6050	+1•0635	+•6050
+1•4	+1•1874	-•5479	+1•1874	+•5479
+1•6	+1•2898	-•4716	+1•2898	+•4716
+1•8	+1•3693	-•3814	+1•3693	+•3814
+2•0	+1•4257	-•2823	+1•4257	+•2823
+2•2	+1•4591	-•1788	+1•4591	+•1788
+2•4	+1•4702	-•0753	+1•4702	+•0753
+2•6	+1•4606	+•0240	+1•4606	-•0240
+2•8	+1•4322	+•1160	+1•4322	-•1160
+3•0	+1•3875	+•1975	+1•3875	-•1975
+3•2	+1•3292	+•2660	+1•3292	-•2660
+3•4	+1•2605	+•3198	+1•2605	-•3198
+3•6	+1•1846	+•3576	+1•1846	-•3576
+3•8	+1•1049	+•3788	+1•1049	-•3788
+4•0	+1•0247	+•3835	+1•0247	-•3835
+4•2	+•9471	+•3723	+•9471	-•3723
+4•4	+•8750	+•3465	+•8750	-•3465
+4•6	+•8118	+•3076	+•8118	-•3076
+4•8	+•7590	+•2579	+•7590	-•2579
+5•0	+•7171	+•1995	+•7171	-•1995
+5•2	+•6882	+•1353	+•6882	-•1353
+5•4	+•6731	+•0680	+•6731	-•0680
+5•6	+•6717	+•0002	+•6717	-•0002
+5•8	+•6836	-•0652	+•6836	+•0652
+6•0	+•7080	-•1260	+•7080	+•1260
+6•2	+•7434	-•1798	+•7434	+•1798
+6•4	+•7880	-•2248	+•7880	+•2248
+6•6	+•8400	-•2594	+•8400	+•2594
+6•8	+•8969	-•2826	+•8969	+•2826
+7•0	+•9564	-•2938	+•9564	+•2938
+7•2	+1•0161	-•2930	+1•0161	+•2930
+7•4	+1•0737	-•2805	+1•0737	+•2805
+7•6	+1•1268	-•2571	+1•1268	+•2571
+7•8	+1•1737	-•2240	+1•1737	+•2240
+8•0	+1•2125	-•1828	+1•2125	+•1828
+8•2	+1•2420	-•1352	+1•2420	+•1352
+8•4	+1•2612	-•0834	+1•2612	+•0834
+8•6	+1•2695	-•0295	+1•2695	+•0295
+8•8	+1•2670	+•0243	+1•2670	-•0243
+9•0	+1•2540	+•0761	+1•2540	-•0761
+9•2	+1•2312	+•1237	+1•2312	-•1237
+9•4	+1•1998	+•1653	+1•1998	-•1653
+9•6	+1•1610	+•1995	+1•1610	-•1995
+9•8	+1•1168	+•2251	+1•1168	-•2251
+10•0	+1•0688	+•2411	+1•0688	-•2411

$\phi = 15^\circ$

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+•2	+•1994	-•0003	-•3458	+•0338
+•4	+•3953	-•0026	-•5102	+•0698
+•6	+•5845	-•0087	-•6007	+•1083
+•8	+•7635	-•0204	-•6400	+•1488
+1•0	+•9294	-•0390	-•6392	+•1901
+1•2	+1•0791	-•0654	-•6058	+•2310
+1•4	+1•2103	-•1004	-•5457	+•2696
+1•6	+1•3207	-•1438	-•4637	+•3037
+1•8	+1•4085	-•1955	-•3649	+•3314
+2•0	+1•4724	-•2543	-•2536	+•3505
+2•2	+1•5116	-•3188	-•1345	+•3593
+2•4	+1•5258	-•3872	-•0121	+•3560
+2•6	+1•5153	-•4571	+•1090	+•3395
+2•8	+1•4811	-•5258	+•2250	+•3091
+3•0	+1•4246	-•5906	+•3316	+•2644
+3•2	+1•3480	-•6484	+•4250	+•2060
+3•4	+1•2540	-•6962	+•5018	+•1347
+3•6	+1•1458	-•7312	+•5590	+•0524
+3•8	+1•0273	-•7508	+•5941	-•0387
+4•0	+•9025	-•7530	+•6054	-•1359
+4•2	+•7760	-•7360	+•5918	-•2356
+4•4	+•6524	-•6989	+•5530	-•3343
+4•6	+•5365	-•6415	+•4896	-•4278
+4•8	+•4316	-•5644	+•4029	-•5119
+5•0	+•3450	-•4689	+•2953	-•5826
+5•2	+•2794	-•3574	+•1698	-•6358
+5•4	+•2384	-•2330	+•0303	-•6680
+5•6	+•2249	-•0995	-•1185	-•6761
+5•8	+•2410	+•0384	-•2714	-•6578
+6•0	+•2878	+•1756	-•4228	-•6117
+6•2	+•3654	+•3066	-•5666	-•5372
+6•4	+•4727	+•4255	-•6967	-•4351
+6•6	+•6075	+•5266	-•8071	-•3072
+6•8	+•7663	+•6043	-•8921	-•1563
+7•0	+•9446	+•6536	-•9467	+•0133
+7•2	+1•1366	+•6701	-•9665	+•1964
+7•4	+1•3358	+•6503	-•9483	+•3868
+7•6	+1•5347	+•5921	-•8899	+•5775
+7•8	+1•7255	+•4946	-•7906	+•7607
+8•0	+1•8999	+•3582	-•6513	+•9284
+8•2	+2•0496	+•1853	-•4744	+1•0727
+8•4	+2•1671	-•0202	-•2642	+1•1855
+8•6	+2•2447	-•2531	-•0262	+1•2598
+8•8	+2•2762	-•3062	+•2320	+1•2892
+9•0	+2•2566	-•7709	+•5019	+1•2686
+9•2	+2•1825	-1•0375	+•7735	+1•1946
+9•4	+2•0524	-1•2956	+1•0362	+1•0654
+9•6	+1•8669	-1•5338	+1•2784	+•8816
+9•8	+1•6287	-1•7407	+1•4868	+•6457
+10•0	+1•3430	-1•9053	+1•6562	+•3627

$\phi = 15^\circ$

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•1655	-•3461	+•2333	+•3455
+•4	+•3255	-•5128	+•4652	+•5076
+•6	+•4761	-•6095	+•6928	+•5919
+•8	+•6147	-•6604	+•9124	+•6195
+1•0	+•7392	-•6782	+1•1195	+•6002
+1•2	+•8481	-•6713	+1•3102	+•5404
+1•4	+•9407	-•6461	+1•4799	+•4452
+1•6	+1•0170	-•6076	+1•6245	+•3198
+1•8	+1•0771	-•5604	+1•7399	+•1693
+2•0	+1•1218	-•5079	+1•8230	-•0006
+2•2	+1•1523	-•4534	+1•8709	-•1842
+2•4	+1•1697	-•3994	+1•8819	-•3750
+2•6	+1•1757	-•3480	+1•8549	-•5661
+2•8	+1•1719	-•3008	+1•7902	-•7509
+3•0	+1•1601	-•2589	+1•6890	-•9223
+3•2	+1•1419	-•2233	+1•5540	-1•0734
+3•4	+1•1192	-•1943	+1•3887	-1•1980
+3•6	+1•0934	-•1722	+1•1982	-1•2902
+3•8	+1•0660	-•1567	+•9885	-1•3450
+4•0	+1•0384	-•1475	+•7666	-1•3584
+4•2	+1•0117	-•1441	+•5403	-1•3279
+4•4	+•9867	-•1459	+•3180	-1•2520
+4•6	+•9643	-•1519	+•1086	-1•1312
+4•8	+•9436	-•1614	-•0803	-•9674
+5•0	+•9276	-•1736	-•2375	-•7643
+5•2	+•9152	-•1876	-•3563	-•5272
+5•4	+•9064	-•2027	-•4295	-•2633
+5•6	+•9010	-•2180	-•4512	+•0190
+5•8	+•8988	-•2330	-•4168	+•3099
+6•0	+•8995	-•2471	-•3238	+•5985
+6•2	+•9027	-•2600	-•1718	+•8732
+6•4	+•9079	-•2712	+•0375	+1•1222
+6•6	+•9147	-•2805	+•3003	+1•3337
+6•8	+•9227	-•2878	+•6100	+1•4965
+7•0	+•9313	-•2931	+•9579	+1•6003
+7•2	+•9401	-•2964	+1•3330	+1•6367
+7•4	+•9489	-•2979	+1•7226	+1•5987
+7•6	+•9572	-•2977	+2•1122	+1•4820
+7•8	+•9648	-•2959	+2•4862	+1•2852
+8•0	+•9715	-•2930	+2•8284	+1•0096
+8•2	+•9771	-•2891	+3•1225	+•6598
+8•4	+•9816	-•2845	+3•3527	+•2439
+8•6	+•9848	-•2794	+3•5046	-•2268
+8•8	+•9869	-•2742	+3•5655	-•7382
+9•0	+•9879	-•2689	+3•5253	-1•2728
+9•2	+•9879	-•2640	+3•3771	-1•8111
+9•4	+•9870	-•2594	+3•1179	-2•3318
+9•6	+•9853	-•2553	+2•7485	-2•8122
+9•8	+•9830	-•2518	+2•2744	-3•2296
+10•0	+•9803	-•2491	+1•7058	-3•5615

$\phi = 30^\circ$

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+•2	+•1996	-•00078	-•3461	+•0676
+•4	+•3973	-•0045	-•5120	+•1393
+•6	+•5908	-•0153	-•6049	+•2160
+•8	+•7781	-•0360	-•6456	+•2975
+1•0	+•9568	-•0694	-•6471	+•3824
+1•2	+1•1243	-•1179	-•6121	+•4683
+1•4	+1•2779	-•1834	-•5454	+•5525
+1•6	+1•4145	-•2672	-•4501	+•6315
+1•8	+1•5311	-•3698	-•3292	+•7013
+2•0	+1•6244	-•4910	-•1853	+•7578
+2•2	+1•6907	-•6297	-•3219	+•7963
+2•4	+1•7269	-•7838	+•1575	+•8125
+2•6	+1•7296	-•9502	+•3488	+•8019
+2•8	+1•6958	-•1•1249	+•5468	+•7605
+3•0	+1•6230	-•1•3028	+•7459	+•6847
+3•2	+1•5092	-•1•4778	+•9397	+•5715
+3•4	+1•3533	-•1•6428	+1•1208	+•4191
+3•6	+1•1554	-•1•7879	+1•2815	+•2266
+3•8	+•9166	-•1•9108	+1•4132	-•0052
+4•0	+•6398	-•1•9963	+1•5071	-•2745
+4•2	+•3294	-•2•0373	+1•5542	-•5770
+4•4	-•0082	-•2•0245	+1•5450	-•9069
+4•6	-•3649	-•1•9493	+1•4728	-1•2562
+4•8	-•7302	-•1•8938	+1•3283	-1•6147
+5•0	-•1•0918	-•1•5815	+1•1058	-1•9701
+5•2	-•1•4350	-•1•2776	+•8007	-2•3080
+5•4	-•1•7436	-•8895	+•4109	-2•6121
+5•6	-•1•9995	-•4176	-•0632	-2•8644
+5•8	-•2•1837	+•1344	-•5179	-3•0457
+6•0	-•2•2763	+•7593	-•1•2454	-3•1362
+6•2	-•2•2572	+•1•4454	-•1•9342	-3•1156
+6•4	-•2•1371	+•2•1705	-•2•6679	-2•9647
+6•6	-•1•8582	+•2•3317	-•3•4254	-2•6654
+6•8	-•1•3453	+•3•6851	-•4•1010	-2•2026
+7•0	-•7•66	+•4•4062	-•4•9039	-1•5643
+7•2	+•1145	+•5•0598	-•5•0591	-•7437
+7•4	+•1•1192	+•5•6070	-•6•1076	+•2601
+7•6	+•2•3012	+•6•0056	-•6•5072	+•1•4412
+7•8	+•3•6463	+•6•2112	-•6•7136	+•2•7851
+8•0	+•5•1298	+•6•1790	-•6•6819	+•4•2679
+8•2	+•6•7187	+•5•5649	-•6•3682	+•5•8359
+8•4	+•8•3677	+•5•3279	-•6•7313	+•7•5041
+8•6	+•1•00214	+•4•2319	-•4•7353	+•9•1567
+8•8	+•11•6121	+•2•8400	-•3•3520	+•10•7470
+9•0	+•13•0632	+•1•3603	-•1•3634	+•12•1975
+9•2	+•14•2877	-•1•1303	+•6•3556	+•13•4215
+9•4	+•1•01910	-•3•7367	+•3•2343	+•14•3245
+9•6	+•15•6734	-•6•7054	+•6•2033	+•14•8066
+9•8	+•15•0326	-•9•0943	+•9•4926	+•14•7656
+10•0	+•14•9677	-•13•0301	+•13•0287	+•14•1005

$$\phi = 30^\circ$$

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+0.2	+0.1319	-0.3467	+0.2673	+0.3436
+0.4	+0.2579	-0.5166	+0.5366	+0.5074
+0.6	+0.3747	-0.6203	+0.8069	+0.5895
+0.8	+0.4805	-0.6827	+1.0757	+0.6106
+1.0	+0.5744	-0.7166	+1.3392	+0.5777
+1.2	+0.6559	-0.7301	+1.5926	+0.4941
+1.4	+0.7253	-0.7289	+1.8304	+0.3619
+1.6	+0.7830	-0.7174	+2.0461	+0.1829
+1.8	+0.8298	-0.6991	+2.2325	-0.0406
+2.0	+0.8665	-0.6764	+2.3822	-0.3056
+2.2	+0.8944	-0.6516	+2.4871	-0.6078
+2.4	+0.9144	-0.6262	+2.5395	-0.9414
+2.6	+0.9276	-0.6014	+2.5316	-1.2990
+2.8	+0.9352	-0.5781	+2.4564	-1.6718
+3.0	+0.9382	-0.5568	+2.3077	-2.0488
+3.2	+0.9376	-0.5380	+2.0807	-2.4175
+3.4	+0.9341	-0.5219	+1.7724	-2.7636
+3.6	+0.9287	-0.5084	+1.3820	-3.0715
+3.8	+0.9219	-0.4975	+0.9114	-3.3241
+4.0	+0.9143	-0.4892	+0.3653	-3.5035
+4.2	+0.9065	-0.4830	-0.2475	-3.5915
+4.4	+0.8987	-0.4789	-0.9151	-3.5701
+4.6	+0.8913	-0.4765	-1.6211	-3.4221
+4.8	+0.8844	-0.4755	-2.3450	-3.1322
+5.0	+0.8783	-0.4757	-3.0619	-2.6873
+5.2	+0.8730	-0.4768	-3.7430	-2.0783
+5.4	+0.8685	-0.4786	-4.3557	-1.3004
+5.6	+0.8648	-0.4809	-4.8640	-0.3543
+5.8	+0.8620	-0.4834	-5.2295	+0.7523
+6.0	+0.8598	-0.4861	-5.4125	+2.0048
+6.2	+0.8584	-0.4887	-5.3728	+3.3797
+6.4	+0.8576	-0.4913	-5.0718	+4.8445
+6.6	+0.8572	-0.4937	-4.4737	+6.3572
+6.8	+0.8573	-0.4958	-3.5479	+7.8662
+7.0	+0.8576	-0.4977	-2.2710	+9.3102
+7.2	+0.8583	-0.4993	-0.6292	+10.6190
+7.4	+0.8591	-0.5006	+1.3793	+11.7147
+7.6	+0.8600	-0.5016	+3.7424	+12.5128
+7.8	+0.8609	-0.5023	+6.4311	+12.9249
+8.0	+0.8618	-0.5029	+9.3978	+12.8610
+8.2	+0.8628	-0.5032	+12.5746	+12.2331
+8.4	+0.8636	-0.5033	+15.8719	+10.9592
+8.6	+0.8644	-0.5033	+19.1780	+8.9673
+8.8	+0.8651	-0.5032	+22.3592	+6.2009
+9.0	+0.8656	-0.5030	+25.2608	+2.6238
+9.2	+0.8661	-0.5027	+27.7092	-1.7740
+9.4	+0.8665	-0.5024	+29.5155	-6.9710
+9.6	+0.8668	-0.5020	+30.4800	-12.9088
+9.8	+0.8670	-0.5017	+30.3982	-19.4869
+10.0	+0.8671	-0.5013	+29.0683	-26.5588

$\phi = 45^\circ$

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+•2	+•1999	-•0006	-•3466	+•1012
+•4	+•3999	-•0053	-•5148	+•2080
+•6	+•5997	-•0179	-•6121	+•3223
+•8	+•7989	-•0426	-•6594	+•4448
+1•0	+•9968	-•0832	-•6652	+•5752
+1•2	+1•1922	-•1437	-•6333	+•7119
+1•4	+1•3831	-•2280	-•5649	+•8528
+1•6	+1•5672	-•3396	-•4601	+•9947
+1•8	+1•7410	-•4821	-•3181	+1•1334
+2•0	+1•9003	-•6587	-•1379	+1•2640
+2•2	+2•0398	-•8718	+•0816	+1•3804
+2•4	+2•1531	-1•1236	+•3415	+1•4754
+2•6	+2•2327	-1•4150	+•6417	+1•5409
+2•8	+2•2700	-1•7461	+•9818	+1•5676
+3•0	+2•2553	-2•1154	+1•3599	+1•5451
+3•2	+2•1777	-2•5198	+1•7725	+1•4621
+3•4	+2•0255	-2•9539	+2•2141	+1•3064
+3•6	+1•7863	-3•4101	+2•6770	+1•0650
+3•8	+1•4471	-3•8778	+3•1506	+•7249
+4•0	+•9953	-4•3432	+3•6209	+•2728
+4•2	+•4177	-4•7886	+4•0704	-•3038
+4•4	-•2962	-5•1922	+4•4775	-1•0168
+4•6	-1•1563	-5•5281	+4•8152	-1•8757
+4•8	-2•1692	-5•7656	+5•0558	-2•8872
+5•0	-3•3376	-5•8609	+5•1639	-4•0543
+5•2	-4•6594	-5•7977	+5•0909	-5•3746
+5•4	-6•1256	-5•8068	+4•8009	-6•8394
+5•6	-7•7192	-4•9408	+4•2415	-8•4318
+5•8	-9•4134	-4•0647	+3•3598	-10•1250
+6•0	-11•1700	-2•8053	+2•1006	-11•8805
+6•2	-12•9370	-1•1121	+•4074	-13•6467
+6•4	-14•6472	+1•0701	-1•7749	-15•3562
+6•6	-16•2163	+3•7932	-4•4982	-16•9247
+6•8	-17•5410	+7•1023	-7•8075	-18•2488
+7•0	-18•4980	+11•0319	-11•7374	-19•2053
+7•2	-18•9425	+15•6015	-16•3072	-19•6495
+7•4	-18•7085	+20•5102	-21•5161	-19•4153
+7•6	-17•6089	+26•6308	-27•3369	-18•3156
+7•8	-15•4368	+33•0030	-33•7094	-16•1433
+8•0	-11•9683	+39•3261	-40•5327	-12•6748
+8•2	-6•9668	+46•9510	-47•6577	-7•6733
+8•4	-•1888	+54•1715	-54•8704	-•8952
+8•6	+8•6079	+61•2166	-61•9237	+7•9014
+8•8	+19•6538	+67•7417	-68•4489	+18•9473
+9•0	+33•1543	+73•3209	-74•0281	+32•4478
+9•2	+49•2739	+77•4403	-78•1476	+48•5673
+9•4	+68•1163	+79•4933	-80•2007	+67•4097
+9•6	+89•7026	+78•7780	-79•4854	+88•9959
+9•8	+113•9442	+74•4775	-75•2050	+113•2375
+10•0	+140•6144	+65•7655	-66•4720	+139•9077

$$\phi = 45^\circ$$

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•0987	-•3473	+•3012	+•3460
+•4	+•1919	-•5201	+•6079	+•5095
+•6	+•2774	-•6301	+•9220	+•5941
+•8	+•3540	-•7020	+1•2438	+•6167
+1•0	+•4216	-•7485	+1•5721	+•5819
+1•2	+•4802	-•7771	+1•9041	+•4895
+1•4	+•5303	-•7929	+2•2360	+•3369
+1•6	+•5725	-•7998	+2•5619	+•1204
+1•8	+•6076	-•8003	+2•8745	-•1640
+2•0	+•6363	-•7966	+3•1644	-•5207
+2•2	+•6594	-•7902	+3•4202	-•9535
+2•4	+•6776	-•7821	+3•6285	-1•4651
+2•6	+•6917	-•7732	+3•7737	-2•0568
+2•8	+•7024	-•7642	+3•8377	-2•7280
+3•0	+•7102	-•7555	+3•8005	-3•4754
+3•2	+•7156	-•7472	+3•6399	-4•2923
+3•4	+•7191	-•7397	+3•3319	-5•1681
+3•6	+•7212	-•7330	+2•8514	-6•0872
+3•8	+•7221	-•7271	+2•1721	-7•0284
+4•0	+•7221	-•7222	+1•2679	-7•9641
+4•2	+•7216	-•7182	+•1138	-8•8590
+4•4	+•7206	-•7147	-1•3131	-9•6698
+4•6	+•7194	-•7119	-3•0320	-10•3444
+4•8	+•7180	-•7097	-5•0564	-10•8215
+5•0	+•7166	-•7080	-7•3920	-11•0298
+5•2	+•7152	-•7067	-10•0341	-10•8887
+5•4	+•7138	-•7058	-12•9651	-10•3077
+5•6	+•7126	-•7052	-16•1510	-9•1883
+5•8	+•7115	-•7049	-19•5384	-7•4246
+6•0	+•7105	-•7047	-23•0506	-4•9060
+6•2	+•7096	-•7047	-26•5837	-1•5196
+6•4	+•7089	-•7048	-30•0035	+2•8450
+6•6	+•7083	-•7049	-33•1410	+8•2915
+6•8	+•7078	-•7051	-35•7899	+14•9099
+7•0	+•7073	-•7054	-37•7034	+22•7693
+7•2	+•7070	-•7056	-38•5921	+31•9087
+7•4	+•7068	-•7059	-38•1239	+42•3263
+7•6	+•7066	-•7061	-35•9245	+53•9678
+7•8	+•7065	-•7063	-31•5802	+66•7125
+8•0	+•7064	-•7065	-24•6432	+80•3589
+8•2	+•7064	-•7067	-14•6401	+94•6087
+8•4	+•7064	-•7069	-1•0841	+109•0500
+8•6	+•7064	-•7070	+16•5093	+123•1404
+8•8	+•7065	-•7071	+38•6011	+136•1907
+9•0	+•7065	-•7072	+65•6021	+147•3490
+9•2	+•7065	-•7073	+97•8412	+155•5879
+9•4	+•7066	-•7073	+135•5261	+159•6941
+9•6	+•7066	-•7073	+178•6985	+158•2635
+9•8	+•7067	-•7074	+227•1818	+149•7026
+10•0	+•7067	-•7074	+280•5222	+132•2385

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+•2	+•2003	-•0005	-•3472	+•1346
+•4	+•4026	-•0046	-•5184	+•2754
+•6	+•6088	-•0158	-•6219	+•4256
+•8	+•8208	-•0378	-•6788	+•5877
+•10	+1•0400	-•0748	-•6971	+•7630
+1•2	+1•2678	-•1314	-•6794	+•9528
+1•4	+1•5052	-•2125	-•6254	+1•1575
+1•6	+1•7525	-•3239	-•5326	+1•3769
+1•8	+2•0095	-•4718	-•3971	+1•6104
+2•0	+2•2752	-•6636	-•2134	+1•8562
+2•2	+2•5472	-•9071	+•0252	+2•1118
+2•4	+2•8221	-•12113	+•3270	+2•3732
+2•6	+3•0949	-•15862	+•7010	+2•6349
+2•8	+3•3583	-•20426	+1•1576	+2•8892
+3•0	+3•6029	-•25923	+1•7082	+3•1264
+3•2	+3•8159	-•32480	+2•3652	+3•3337
+3•4	+3•9816	-•40227	+3•1415	+3•4947
+3•6	+4•0797	-•43301	+4•0506	+3•5891
+3•8	+4•0852	-•50638	+5•1059	+3•5918
+4•0	+3•9674	-•71966	+6•3203	+3•4718
+4•2	+3•6891	-•85803	+7•7054	+3•1919
+4•4	+3•2056	-10•1440	+9•2705	+2•7071
+4•6	+2•4636	-11•8938	+11•0215	+1•9642
+4•8	+1•4003	-13•8303	+12•9591	+•9003
+5•0	-•0573	-15•7475	+15•0771	-•5578
+5•2	-1•9944	-18•2298	+17•3602	-2•4952
+5•4	-4•5081	-20•6493	+19•7804	-5•0090
+5•6	-7•7087	-23•1627	+22•2944	-8•2097
+5•8	-11•7203	-25•7065	+24•8386	-12•2213
+6•0	-16•6802	-28•1924	+27•3249	-17•1812
+6•2	-22•7392	-30•0016	+29•6344	-23•2402
+6•4	-30•0596	-32•4778	+31•6108	-30•5605
+6•6	-38•8132	-33•9197	+33•0529	-39•3140
+6•8	-49•1779	-34•5721	+33•7055	-49•6786
+7•0	-61•3321	-34•1161	+33•2496	-61•3327
+7•2	-75•4479	-32•1580	+31•2915	-75•9485
+7•4	-91•6813	-28•2170	+27•3507	-92•1817
+7•6	-110•1590	-21•7128	+20•8465	-110•6594
+7•8	-130•9625	-11•7508	+11•0846	-131•4628
+8•0	-154•1064	+1•0911	-2•7573	-154•6067
+8•2	-179•5154	+20•1781	-21•6443	-180•0130
+8•4	-206•9808	+45•6313	-46•6975	-207•4783
+8•6	-236•1368	+78•3407	-79•2069	-236•6342
+8•8	-266•4015	+119•7750	-120•6412	-266•8989
+9•0	-296•9224	+171•7881	-172•6542	-297•4199
+9•2	-326•5077	+236•2191	-237•0853	-327•0051
+9•4	-353•5457	+315•0858	-315•9520	-354•0431
+9•6	-375•9119	+410•5663	-411•4325	-376•4093
+9•8	-390•8604	+524•9672	-525•8335	-391•3578
+10•0	-394•9019	+600•6740	-601•5402	-395•3992

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•0656	-•3478	+•3350	+•3467
+•4	+•1272	-•5231	+•6780	+•5138
+•6	+•1831	-•6377	+1•0345	+•6061
+•8	+•2330	-•7167	+1•4085	+•6410
+1•0	+•2769	-•7720	+1•8031	+•6222
+1•2	+•3150	-•8108	+2•2207	+•5480
+1•4	+•3477	-•8380	+2•6627	+•4128
+1•6	+•3756	-•8566	+3•1295	+•2087
+1•8	+•3991	-•8690	+3•6200	-•0747
+2•0	+•4189	-•8770	+4•1314	-•4501
+2•2	+•4353	-•8813	+4•6591	-•9323
+2•4	+•4489	-•8843	+5•1954	-1•5383
+2•6	+•4600	-•8851	+5•7298	-2•2872
+2•8	+•4691	-•8850	+6•2476	-3•2003
+3•0	+•4764	-•8840	+6•7293	-4•3006
+3•2	+•4822	-•8827	+7•1497	-5•6132
+3•4	+•4869	-•8811	+7•4764	-7•1642
+3•6	+•4905	-•8795	+7•6689	-8•9808
+3•8	+•4934	-•8779	+7•8771	-11•0898
+4•0	+•4955	-•8763	+7•4393	-13•5170
+4•2	+•4972	-•8748	+6•5811	-16•2857
+4•4	+•4984	-•8735	+5•9127	-19•4146
+4•6	+•4993	-•8723	+4•4278	-22•9153
+4•8	+•5000	-•8712	+2•3006	-26•7895
+5•0	+•5004	-•8703	-•6152	-31•0247
+5•2	+•5007	-•8695	-•4•4096	-35•5900
+5•4	+•5009	-•8688	-•9•5171	-40•4298
+5•6	+•5009	-•8683	-1•5•9185	-45•4571
+5•8	+•5010	-•8678	-23•9416	-50•5451
+6•0	+•5009	-•8674	-33•6015	-55•5173
+6•2	+•5009	-•8672	-45•774	-60•1360
+6•4	+•5008	-•8670	-60•6201	-64•0886
+6•6	+•5007	-•8665	-73•1273	-66•9726
+6•8	+•5006	-•8666	-73•8565	-68•2776
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+7•2	+•5005	-•8664	-1•51•3964	-63•4495
+7•4	+•5004	-•8663	-183•3631	-55•5678
+7•6	+•5003	-•8662	-223•3185	-42•5593
+7•8	+•5003	-•8662	-262•4253	-23•0355
+8•0	+•5002	-•8662	-303•7131	+4•6484
+8•2	+•4975	-•8661	-359•3284	+42•4224
+8•4	+•4975	-•8661	-414•4532	+92•5288
+8•6	+•4974	-•8661	-472•7710	+157•5476
+8•8	+•4974	-•8661	-533•3005	+240•4163
+9•0	+•4974	-•8661	-574•3423	+344•4423
+9•2	+•4974	-•8651	-603•3125	+473•3045
+9•4	+•4973	-•8651	-707•3889	+631•0379
+9•6	+•4973	-•8651	-752•3212	+821•9989
+9•8	+•4973	-•8652	-782•2153	+1050•8008
+10•0	+•4973	-•8652	-790•3011	+1322•2143

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+•2	+•2995	-•9993	-•3478	+•1678
+•4	+•4946	-•9927	-•9223	+•3412
+•6	+•6157	-•9992	-•6334	+•5246
+•8	+•8374	-•9922	-•7035	+•7217
+1•0	+1•0737	-•9944	-•7418	+•9364
+1•2	+1•3285	-•9989	-•7521	+1•1724
+1•4	+1•6064	-•9995	-•7350	+1•4341
+1•6	+1•9119	-•9997	-•6890	+1•7257
+1•8	+2•2593	-•9980	-•6197	+2•0522
+2•0	+2•6271	-•9982	-•4949	+2•4190
+2•2	+3•0484	-•9994	-•3346	+2•8318
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+2•6	+4•0517	-•9973	+•1587	+3•8220
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+3•0	+5•3197	-•9916	+•9747	+5•0807
+3•2	+6•0737	-•9910	+1•5510	+5•8311
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+3•8	+8•9217	-•9952	+4•2912	+8•6718
+4•0	+10•0949	-•9976	+5•6729	+9•8434
+4•2	+11•3923	-•9906	+7•3753	+11•1394
+4•4	+12•8185	-•9943	+9•4662	+12•5645
+4•6	+14•3748	-•9929	+12•3270	+14•1199
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+8•4	-89•4367	-•9950	+412•0739	-89•6975
+8•6	-138•0252	-•9939	+582•1379	-138•2841
+8•8	-241•7333	-•9970	+635•9320	-202•0421
+9•0	-284•5400	-•9995	+698•4435	-284•8989
+9•2	-391•4325	-•9913	+745•8253	-391•6913
+9•4	-528•1350	-•9979	+1110•3619	-528•3589
+9•6	-701•9154	-•9965	+1275•4303	-702•1742
+9•8	-921•7591	-•9923	+1506•4368	-922•0179
+10•0	-1138•4461	-•9978	+1745•7238	-1198•7350

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•0327	-•3482	+•3683	+•3475
+•4	+•0633	-•5250	+•7458	+•5196
+•6	+•0910	-•6426	+1•1403	+•6241
+•8	+•1156	-•7257	+1•5592	+•6812
+1•0	+•1373	-•7863	+2•0101	+•6974
+1•2	+•1560	-•8311	+2•5010	+•6731
+1•4	+•1723	-•8645	+3•0405	+•6054
+1•6	+•1861	-•8897	+3•6377	+•4882
+1•8	+•1980	-•9088	+4•3026	+•3126
+2•0	+•2081	-•9232	+5•0461	+•0667
+2•2	+•2166	-•9341	+5•8803	-•2647
+2•4	+•2237	-•9423	+6•8181	-•7010
+2•6	+•2297	-•9486	+7•8738	-1•2660
+2•8	+•2348	-•9533	+9•0624	-1•9892
+3•0	+•2390	-•9568	+10•4005	-2•9064
+3•2	+•2425	-•9594	+11•9049	-4•0615
+3•4	+•2454	-•9614	+13•5934	-5•5080
+3•6	+•2478	-•9629	+15•4838	-7•3102
+3•8	+•2498	-•9639	+17•5935	-9•5464
+4•0	+•2514	-•9647	+19•9384	-12•3106
+4•2	+•2528	-•9652	+22•5318	-15•7159
+4•4	+•2539	-•9656	+25•3830	-19•8981
+4•6	+•2548	-•9659	+28•4947	-25•0200
+4•8	+•2556	-•9661	+31•8604	-31•2758
+5•0	+•2562	-•9662	+35•4607	-38•8972
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+5•4	+•2571	-•9663	+43•1926	-59•3909
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+5•8	+•2577	-•9663	+51•0571	-89•3784
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+6•2	+•2581	-•9662	+57•7341	-132•8718
+6•4	+•2583	-•9662	+59•9183	-161•3414
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+8•8	+•2588	-•9660	-403•8254	-1374•8301
+9•0	+•2588	-•9660	-569•5390	-1617•8530
+9•2	+•2588	-•9660	-783•1238	-1898•6166
+9•4	+•2588	-•9660	-1056•4590	-2221•6898
+9•6	+•2588	-•9660	-1404•0897	-2591•8266
+9•8	+•2588	-•9660	-1843•7771	-3013•8396
+10•0	+•2589	-•9660	-2397•1511	-3492•4136

$\phi = 90^\circ$

X	RE(IJ)	IM(IJ)	RE(IN)	IM(IN)
+•2	+•2006	+•0000	-•3483	+•2006
+•4	+•4053	+•0000	-•5256	+•4053
+•6	+•6182	+•0000	-•6442	+•6182
+•8	+•8436	+•0000	-•7288	+•8436
+1•0	+1•0865	+•0000	-•7910	+1•0865
+1•2	+1•3519	+•0000	-•8377	+1•3519
+1•4	+1•6461	+•0000	-•8733	+1•6461
+1•6	+1•9758	+•0000	-•9006	+1•9758
+1•8	+2•3489	+•0000	-•9217	+2•3489
+2•0	+2•7749	+•0000	-•9382	+2•7749
+2•2	+3•2647	+•0000	-•9511	+3•2647
+2•4	+3•8313	+•0000	-•9612	+3•8313
+2•6	+4•4900	+•0000	-•9691	+4•4900
+2•8	+5•2592	+•0000	-•9754	+5•2592
+3•0	+6•1609	+•0000	-•9804	+6•1609
+3•2	+7•2210	+•0000	-•9843	+7•2210
+3•4	+8•4711	+•0000	-•9875	+8•4711
+3•6	+9•9486	+•0000	-•9900	+9•9486
+3•8	+11•6986	+•0000	-•9920	+11•6986
+4•0	+13•7750	+•0000	-•9936	+13•7750
+4•2	+16•2430	+•0000	-•9948	+16•2430
+4•4	+19•1804	+•0000	-•9959	+19•1804
+4•6	+22•6813	+•0000	-•9967	+22•6813
+4•8	+26•8586	+•0000	-•9973	+26•8586
+5•0	+31•8483	+•0000	-•9979	+31•8483
+5•2	+37•8142	+•0000	-•9983	+37•8142
+5•4	+44•9537	+•0000	-•9986	+44•9537
+5•6	+53•5044	+•0000	-•9989	+53•5044
+5•8	+63•7532	+•0000	-•9991	+63•7532
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+6•2	+90•7990	+•0000	-•9994	+90•7990
+6•4	+108•5163	+•0000	-•9996	+108•5163
+6•6	+129•8051	+•0000	-•9997	+129•8051
+6•8	+155•3987	+•0000	-•9997	+155•3987
+7•0	+186•1826	+•0000	-•9998	+186•1826
+7•2	+223•2265	+•0000	-•9998	+223•2265
+7•4	+267•8226	+•0000	-•9999	+267•8226
+7•6	+321•5327	+•0000	-•9999	+321•5327
+7•8	+386•2443	+•0000	-•9999	+386•2443
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+9•0	+1173•0047	+•0000	-1•0000	+1173•0047
+9•2	+1413•7086	+•0000	-1•0000	+1413•7086
+9•4	+1704•4302	+•0000	-1•0000	+1704•4302
+9•6	+2055•6496	+•0000	-1•0000	+2055•6496
+9•8	+2480•0561	+•0000	-1•0000	+2480•0561
+10•0	+2993•0162	+•0000	-1•0000	+2993•0162

$\phi = 90^\circ$

X	RE(IH1)	IM(IH1)	RE(IH2)	IM(IH2)
+•2	+•0000	-•3483	+•4013	+•3483
+•4	+•0000	-•5256	+•8107	+•5256
+•6	+•0000	-•6442	+1•2364	+•6442
+•8	+•0000	-•7288	+1•6873	+•7288
+1•0	+•0000	-•7910	+2•1730	+•7910
+1•2	+•0000	-•8377	+2•7039	+•8377
+1•4	+•0000	-•8733	+3•2922	+•8733
+1•6	+•0000	-•9006	+3•9516	+•9006
+1•8	+•0000	-•9217	+4•6979	+•9217
+2•0	+•0000	-•9382	+5•5499	+•9382
+2•2	+•0000	-•9511	+6•5295	+•9511
+2•4	+•0000	-•9612	+7•6626	+•9612
+2•6	+•0000	-•9691	+8•9800	+•9691
+2•8	+•0000	-•9754	+10•5185	+•9754
+3•0	+•0000	-•9804	+12•3218	+•9804
+3•2	+•0000	-•9843	+14•4421	+•9843
+3•4	+•0000	-•9875	+16•9423	+•9875
+3•6	+•0000	-•9900	+19•8973	+•9900
+3•8	+•0000	-•9920	+23•3972	+•9920
+4•0	+•0000	-•9936	+27•5501	+•9936
+4•2	+•0000	-•9948	+32•4860	+•9948
+4•4	+•0000	-•9959	+38•3609	+•9959
+4•6	+•0000	-•9967	+45•3627	+•9967
+4•8	+•0000	-•9973	+53•7173	+•9973
+5•0	+•0000	-•9979	+63•6967	+•9979
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+5•6	+•0000	-•9989	+107•0089	+•9989
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+6•4	+•0000	-•9996	+217•0327	+•9996
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+10•0	+•0000	-1•0000	+5986•0524	+1•0000

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